<u>Amendments of the Specification</u>

Please substitute the following paragraph for the paragraph at page 2, lines 14-23.

K.N. Tu, Materials Chemistry and Physics 46 (1996) 217-223, and K.N. Tu, Physical Review B, Volume 49 (3) (1994), 2030-2034, demonstrate that the very beginning of whisker growth correlates with the formation of intermetallic compounds (IMC). It is not, however, only the pure abundance of the IMC that initiates whisker growth. At least as important is the morphology and in particular the uniformity of the IMC layer between the substrate and the tin electrodeposit. According to Lee and Lee, *Spontaneous Growth ~~mechanism~~ <u>Mechanism</u> of Tin Whiskers*, <u>Acta Mater.</u>, vol. 46, no. 10, pp 3701-3714, 1998, an inhomogeneous build-up of the IMC layer results in so-called bi-axial compressive stress, which then is released in the form of whisker growth. From this, that document concludes that a smooth and uniform IMC layer provides a means to significantly reduce whisker growth.

Please substitute the following paragraph for the paragraph at page 4, lines 1-11.

Prior to the tin or tin-alloy electroplating process, the substrate is electrolytically treated in order to precondition the surface for plating. The preconditioning step is beneficially carried out so as to and smooth the substrate surface. It is believed that such a surface allows for uniform diffusion of the later deposited tin into the substrate to form a uniform layer of the intermetallic compound. With surface polishing, peaks in a non-uniform surface are preferentially removed relative to lower areas of the substrate surface. This is in contrast to surface preconditioning in which the surface of the substrate is not polished, but is etched. Etching refers to a non-preferential removal of material ~~form~~ <u>from</u> the substrate surface. Surface etching provides a roughened substrate surface, resulting in non-uniform diffusion of the tin into the substrate and creating localized areas of stress in the tin or tin-alloy layer, where tin whisker formation can be induced.

Please substitute the following paragraph for the paragraph at page 7, lines 3-13.

The tin or tin-alloy layer may be deposited by a variety of means. Preferably, the tin or tin-alloy is deposited electrolytically in a high speed electroplating system. Such systems are known to persons skilled in the art. The plating solution is introduced into the system such that it substantially fills the plating cell, continuously overflows into an overflow reservoir, and is continuously returned to the cell. The substrates pass through the electroplating solution in the

cell.[[.]] Such electrolytic deposition may be, for example, by direct current ("DC") or by pulse plating, including pulse periodic reverse plating. The choice of the deposition technique will depend, for example, upon the particular substrate and the layer to be deposited. Typically, the tin or tin-alloy plating bath is at a temperature of from about 20° to about 60° C, preferably from about 35° to 45°C. Typically, the current density for the tin or tin-alloy electroplating is from 1 to 50 amps/dm^2, preferably from 5 to 30 A/dm^2.

Please substitute the following paragraph for the paragraph at page 8, line 25 to page 9, line 2.

Bright deposits may be obtained by adding brighteners to the tin and tin-alloy electrolyte compositions. Such brighteners are well known to those skilled in the art. Suitable brighteners include, but are not limited to, aromatic aldehydes such as naphthaldehyde[[.]], benzaldehyde, allylbenzaldehyde, methoxybenzaldehyde and chlorobenzaldehyde, derivatives of aromatic aldehydes, such as benzyl acetone and benzylidine acetone, aliphatic aldehydes, such as acetaldehyde or glutaraldehyde, and acids such as acrylic acid, methacrylic acid and picolinic acid. Typically, brighteners are used at an amount of 0.1 to 3 g/L, and preferably 0.5 to 2 g/L.